

REMARKS

In the present Amendment, Claims 1 and 36 have been amended to correct “where in” to --wherein--. No new matter has been added, and entry of the Amendment is respectfully requested.

Claims 1, 3-5, 7-14, 19-24 and 36-53 are pending.

Applicants note with appreciation that Claims 1, 3-5, 7-11, 13, 14, 19-24, 36-44 and 46-53 are allowed.

In paragraph No. 4 of the Action, Claims 12 and 45 have been rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Ozawa et al (WO 01/34658). The Examiner uses its’ US equivalent, US 6,992,147, for citation.

Applicants submit that this rejection should be withdrawn because Ozawa et al does not disclose or render obvious the present invention.

The Examiner contends that Ozawa et al discloses a composition comprising a modified polymer derived by a process of treating a pseudo-living polymer with a hydrocarbyloxysilane compound according to the instant claims (col. 5, line 38 to col. 11, lines 24) and that Ozawa et al further teaches the condensation of the modified polymer (col. 12, lines 18-38).

The Examiner concedes that Ozawa et al is silent on the claimed process for preparing the condensed modified polymer, particularly, that Ozawa does not teach or fairly suggest the claimed process where an alkaline metal compound and/or an alkaline earth metal compound is/are employed as polymerization initiator(s) (see, page 5 of the Action).

However, the Examiner takes the position that the claimed product appears to be the same or similar to that of Ozawa et al, although produced by a different process.

Applicants respectfully disagree.

The presently claimed polymers are completely different from the polymers disclosed in Ozawa et al.

The presently claimed polymers are produced by *anionic polymerization* using alkaline metal compounds and/or alkaline earth metal compounds.

In contrast, the polymers disclosed in Ozawa et al are produced by *coordination polymerization* using lanthanide-based coordination catalyst systems.

Accordingly, the structure of the presently claimed polymers is completely different from that of the polymers disclosed in Ozawa et al, as explained below.

The following Table shows the descriptions of the polymers of the present invention and those disclosed in Ozawa et al.

	Polymers of the present invention	Polymers disclosed in Ozawa et al
Process	Anionic polymerization	Coordination polymerization
Catalyst System (polymerization initiator)	Alkaline metal compounds and/or alkaline earth metal compounds	Lanthanide-based coordination catalyst systems (col. 4, lines 1-16 of the '147 patent)
Products	SBR can be obtained Polybutadiene can be obtained	<u>SBR cannot be obtained</u> Polybutadiene can be obtained
Microstructures of polybutadiene and SBR	<u>Regarding SBR</u> Production Examples 1-15 SBR products have 19.8 to 21.0 wt% of styrene unit content and 51.7 to 52.6 wt% of vinyl group content. In other words, small amount of cis-1,4 content and trans-1,4 content	<u>Regarding polybutadiene</u> "polymer having a cis microstructure that is greater than about 85%, a 1,2- or 3,4-unit content that is less than about 3%, and a molecular weight distribution that is less than about 5." (col. 2, line 67 to col. 3, line 3 of the '147 patent) Examples 1-5 Comparative Example 1 had a 93% cis structure and less than 1% vinyl structure as

		<p>determined by Fourier-Transform Infrared Spectroscopy (FTIR). (col. 15, lines 5-7 of the '147 patent)</p> <p>Examples 6-8 Comparative Example 6 had 91% cis microstructure and less than 1% vinyl structure. (col. 15, lines 26-28 of the '147 patent)</p> <p><u>Note: Comparative Examples 1 and 6 are unmodified polymers</u></p>
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Further, the Examiner will kindly refer to the attached literature, which is a publication "Science and Technology of RUBBER" published in 1994.

In "B. Chain Microstructure of Polydienes" at pages 66-67 and TABLE XIV at page 67 of the publication, it is disclosed that "[i]n case of butadiene, however, the maximum cis-1,4 content attainable is much less than for isoprene; typical commercial polybutadienes prepared in hydrocarbon solution with butyllithium initiators have microstructures in the range 36-44% cis-1,4, 48-50% trans-1,4, and 8-10% 1,2 microstructure. The effect of polar solvents, or of the more electropositive alkali metals, is to produce a high-1,2 polybutadiene." See, the third line from the bottom of page 66 to the third line of page 67.

Further, in "C. Polydienes" at pages 75-76, it is disclosed that "[c]ommercial polybutadienes with high-cis-1,4 microstructure are prepared using a wide range of transition metal catalysts, of which the most important are those derived from cobalt, nickel, neodymium and titanium, analogous to those listed in Table XVII." See, page 75.

Still further, Table XVII shows several polybutadienes with high-cis-1,4 microstructure, especially, 97% cis-1,4 when $\text{NdCL}_3/\text{Al}(\text{i-C}_4\text{H}_9)_3\text{nL}^\circ$ catalyst was used.

In conclusion, the structure of the presently claimed polymers is completely different from that of the polymers disclosed in Ozawa et al.

Accordingly, Claims 12 and 45 are patentable over Ozawa et al. Reconsideration and withdrawal of the rejection of Claims 12 and 45 based on Ozawa et al are respectfully requested.

Allowance is respectfully requested. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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